LEPINSKIKH B.M.; YESIN, O.A.; TETERIN, G.A.

Surface tension and density of alloys containing oxides of lead, vanadium, and silicon. Zhur. neorg. khim. 5 no.3:642-648 Mr '60. (MIRA 14:6)

1. Institut metallurgii Ural'skogo filiala AN SSSR.
(Lead oxide)
(Vanadium oxide)
(Silica)

LEPINSKIKH, B.M.

PHASE I BOOK EXPLOITATION SOV/4548

Akademiya nauk SSSR. Komissiya po fiziko-khimicheskim osnovam proizvodstva stali

Primeneniye vakuuma v metallurgii (Use of Vacuum in Metallurgy) Moscow, Izd-vo AN SSSR, 1960. 334 p. Errata slip inserted. 4,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova. Komissiya po fiziko-khimicheskim osnovam proizvodstva stali.

Resp. Ed.: A.M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: G.M. Makovskiy; Tech. Ed.: S.G. Markovich.

PURPOSE: This collection of articles is intended for technical personnel interested in recent studies and developments of vacuum steelmaking practice and equipment.

COVERAGE: The book contains information on steel melting in vacuum induction furnaces, and vacuum arc furnaces, reduction processes in vacuum, and degassing of steel and alloys. The functioning of apparatus and equipment, especially vacuum furnaces and vacuum booster pumps is also analyzed. Personalities are mentioned in connection with some of the articles and will appear in the Table of Contents. Three articles have been translated from English. Some of the

PART IV. DEGASSING OF STEEL AND ALLOYS

4/5

LEPINSKIKH, B.M.

PHASE I BOOK EXPLOITATION SOV/5035

Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 3d, Leningrad, 1959.

Stekloobraznoye sostoyaniye; trudy Tret'yego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad on November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 534 p. Errata slip inserted. 3,200 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barzakovskiy, M.A. Bezborodov, O.K. Botvinkin, V.V.Vargin, A.G. Vlasov, K.S. Yevstrop'yev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Poray-Koshits, Chairman, N.A. Toropov, V.A. Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Suvorov; Tech. Ed.: V.T. Bochever.

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. They deal with the methods and results of studying the structure of glasses, the relation between the structure and properties of glasses, the nature of the chemical bond and glass structure, and the crystallochemistry of glass. Fused silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glasses are also discussed. A number of the reports deal with the dependence of glass properties on composition, the tinting of glasses and radiation effects, and mechanical, technical, and chemical properties of glasses. Other papers treat glass semiconductors and soda borosilicate glasses. The Conference was attended by more than 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were N.V. Solomin, Ye. V. Kurshinskiy, Yu.A. Gastev, V.P. Pryanishnikov, Yu. Ya. Gotlib, O.P. Mchedlov-Petrosyan, G.P. Mikhaylov, S.M. Petrov, A.N. Lazarev, D.I. Levin, A.V. Shatilov, N.T. Ploshchinskiy, A.Ya. Kuznetsov, E.V. Degtyareva, G.V. Byurganovskaya, A.A. Kalenov, M.M. Skornyakov, P.Ya. Bokin, E.K. Keller, Ya.A. Kuznetsov, V.P. Pozinev, R.S. Shevelevich, Z.G. Pinsker, and O.S. Molchanova. The final session of the Conference was addressed by Professor I.I. Kitaygorodskiy, Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskiy institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fizicheskiy institut AN SSSR (Physics Institute AS USSR), Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute AS USSR), Institut fiziki AN BSSR, Minsk (Institute of Physics, Academy of Sciences, Belorusskaya SSR, Minsk), Laboratory of Physical Chemistry of Silicates of the Institut obshchey i neorganicheskoy khimii AN BSSR, Minsk (Institute of General and Inorganic Chemistry, Academy of Sciences, Belorusskaya SSR, Minsk), Institut vysokomolekulyarnykh soyedineniy AN SSSR (Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (State Institute for Glass), Gosudarstvennyy institut steklovolokna (State Institute for Glass Fibers), Gosudarstvennyy institut elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-technicheskiy institut, Tomsk (Siberian Physicotechnical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute imeni Lensovet), Belorusskiy politekhnicheskiy institut Minsk (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute), and Sverdlovskiy politekhnicheskiy institut (Sverdlovsk Polytechnic Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev), and the Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova (State "Order of Lenin" Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to organize a Center for the purpose of coordinating the research on glass, to publish a new periodical under the title "Fizika i khimiya stekla" (Physics and Chemistry of Glass), and to join the International Committee on Glass. The Conference thanks A.A. Lebedev, Academician, Professor, and Chairman of the Organization of Committee; Ye.A. Poray-Koshits, Doctor of Physics and Mathematics, Member of the Organizational Committee, and R.L. Myuller, Doctor of Chemical Sciences, Member of the Organizational Committee. The editorial board thanks G.M. Bartenev, M.V. Vol'kenshteyn, L.I. Demkina, D.P. Dobychin, S.P. Zhdanov, V.A. Ioffe, and B.T. Kolomiyets. References accompany individual reports.

Vitreous State (Cont.)

Relation Between the Structure and Properties of Glasses

Nature of the Chemical Bond and Structure of Glasses

Card 6/22

Vitreous State (Cont.)

"Crystallochemistry of Glass"

FUSED SILICA. MECHANISM OF VITRIFICATION

Fused Silica

Card 7/22

Vitreous State (Cont.)

Mechanism of Vitrification

Card 8/22

SHAVRIN, S.V.; SAPOZHNIKOVA, T.V.; LEPINSKIKH, B.M.

Electric resistance and phase constitution of briquetted ilmenite in the process of reduction roasting. Titan i ego splavy no.4:28-31 '60. (MIRA 13:11)
(Ilmenite--Electric properties) (Ore dressing)

GOL'DSHTEYN, Nison L'vovich; VOSKOBOYNIKOV, V.G., prof., doktor tekhn. nauk, retsenzent; NEKRASOV, N.K., dots., kand. tekhn. nauk, retsenzent; VATOLIN, N.A., kand. tekhn. nauk, retsenzent; LEPINSKIKH, B.M., retsenzent; POPEL', S.I., prof. doktor tekhn. nauk, red.; BUR'KOV, M.M., red. izd-va; TURKINA, Ye.D., tekhn. red.

[Short course on the theory of metallurgical processes] Kratkii kurs teorii metallurgicheskikh protsessov. Sverdlovsk, Gos. nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 334 p. (MIRA 15:2)
(Metallurgy)

S/081/62/000/008/033/057
B156/B101

18.1200

AUTHORS: Lepinskikh, B. M., Yesin, O. A., Musikhin, V. I., Vatolin, N. A.

TITLE: The electrochemical alloying of metal with vanadium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 8, 1962, 372, abstract 8K198 (Sb. "Fiz.-khim. osnovy proiz-va stali". M., AN SSSR, 1961, 238-241)

TEXT: The electrochemical extraction of V from dumped or conversion blast furnace slags containing up to 20% V_2O_5 and up to 40% FeO is described. The cathodic current yield of V in relation to D_c, the furnace atmosphere, the composition of the slag and metal and the temperature is investigated. In oxidizing atmospheres the cathodic current is much lower than in reducing atmospheres, since in the first case the V is in the form of V_2O_5. Variation between 1 and 2.5 a/cm^2 in D_c may be accompanied by a possible variation between 5 and 25% in the initial V content. The metal bath of the furnace can be used as the cathode. [Abstracter's note: Complete translation.]

Card 1/1

S/030/61/000/004/012/015
B105/B206

AUTHORS: Baraboshkin, A. N., Candidate of Technical Sciences
Lepinskikh, B. M., Candidate of Technical Sciences

TITLE: Physical Chemistry of Molten Salts and Slags

PERIODICAL: Vestnik Akademii nauk SSSR, no. 4, 1961, 122-123

TEXT: The Vsesoyuznoye soveshchaniye po fizicheskoy khimii rasplavlennykh soley i shlakov (All-Union Conference on Physical Chemistry of Molten Salts and Slags) was convened by the Otdeleniye khimicheskikh nauk (Department of Chemical Sciences) and the Institut elektrokhimii Ural'skogo filiala Akademii nauk SSSR (Institute of Electrochemistry of the Ural Branch, Academy of Sciences USSR) in order to coordinate research in the field of molten salts and metallurgical slags. The Conference was held in Sverdlovsk from November 22 to 25, 1960, and was attended by about 400 delegates from 72 scientific organizations of the Soviet Union. In the Section for Molten Salts, main attention was paid to problems of structure and thermodynamics of melts, the investigation of their physicochemical properties, of the equilibrium in the system metal - salt, and of electrode processes. Reports by M. F. Lantratov, A. F. Alabyshev, A. G. Morachevskiy, M. V. Smirnov, and N. Ya. Chukreyev dealt with the investigation results of complex formation in molten salts.
Card 1/4

Physical Chemistry ...

M. V. Smirnov, N. Ya. Chukreyev, and V. Ye. Komarov established by the emf method that the solutions of molten salts are subject to Henry's law in the field of low concentrations. Reports by N. K. Voskresenskaya, I. D. Sokolova, Ye. L. Krivovyazov, R. V. Chernov, Yu. K. Delimarskiy, and B. F. Markov explained the idea of the conformance between the structure of salts and their mixtures in solid and molten state. A. I. Belyayev elaborated a new method for the investigation of melts which is based on measuring the absorption of γ-radiation of radioactive substances. Reports dealing with the investigation of the states of equilibrium in the system metal - salt (A. P. Palkin, L. N. Antipin, S. F. Vazhenin, M. V. Smirnov, and N. A. Loginov) showed that the formation of ions of low valency is the main cause of the solving of metals in melts. By means of the emf method, M. V. Smirnov, V. Ye. Komarov, and N. Ya. Chukreyev determined the temperature dependence of the equilibrium constants between the metals zirconium, hafnium, beryllium, and their ions of low and higher valency in chloride melts. M. V. Smirnov, A. N. Baraboshkin, Yu. K. Delimarskiy, B. I. Skirstymonskaya, and M. [illegible] Lantratov showed that the electrode reaction is controlled under usual conditions by the diffusion in the salt- and metal phases, respectively. Ye. A. Ukshe, N. G. Bukun, and D. I. Leykis mentioned measurement results of diffusion coefficients of ions in chloride melts.

Physical Chemistry ...

V. P. Mashovets and I. M. Yegorov discovered a noticeable activation polymerization during the discharge of oxygen-containing ions on graphite. O. V. Travin and L. A. Shvarzman studied conditions of equilibrium distribution of elements of the 5th and 6th group of the periodic system (Nb, Mo, W) between molten iron and slags of simple composition as well as problems of metal refining by means of solid admixtures. Yu. P. Nikitin gave an evaluation of the rate of the transition reaction of Fe^{2+} from metal into slag. V. I. Malkin analyzed the structure of molten slags and pointed out that the acid-basic properties of silicate melts may be described by the theory of screening. Questions of the structure of molten oxidized melts were mentioned in the discussion, the majority of the studies showing that the heteropolar bond is predominant in molten slags. In its resolution, the Conference pointed out the insufficient development of studies on the molecular-statistical theory of ionic melting, the slow introduction of new physical research methods of structures of the melt. The necessity of intensifying studies of thermodynamic properties of molten mixtures and the states of equilibrium of metal melting is pointed out. It was also recommended to pay greater attention to the systems with low melting temperatures, and the study of kinetics and mechanism of electrode reactions,

Card 3/4

especially the electrode crystallization of metals. Finally, the proposition was accepted to hold such conferences regularly and to start a clear coordination of scientific investigation in the field of melts.

S/180/61/000/005/002/018
E071/E435

AUTHORS: Lepinskikh, B.M., Yesin, O.A., Manakov, A.I. (Sverdlovsk)

TITLE: Electrolytic precipitation of chromium and vanadium from molten slags

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.5, 1961, 19-21

TEXT: An electrolytic separation of vanadium under reducing and oxidizing conditions as well as simultaneous precipitation of chromium and vanadium from a works' slag were investigated. In the initial experiments the starting slag contained 40% CaO, 15% Al_2O_3, 5% MgO and 40% SiO_2. To this slag an addition of 10 to 20% V_2O_5 or 5% Cr_2O_3 and 5% V_2O_5 was made. The electrolysis was carried out in corundum crucibles placed in a carbon resistance furnace heated to 1600°C. Tungsten wire was used for electrodes. It was found that under reducing conditions, the current efficiency for vanadium (about 80%) is practically independent of the current density. Under oxidizing conditions the current efficiency does not exceed 25%, probably due to the

Card 1/3

oxidation of the reduced product by the gaseous phase. On simultaneous separation of chromium and vanadium with increasing current density, the current yield of vanadium sharply decreases and that of chromium remains practically constant. At a current density above 1.1 A/cm^2, silicon begins to be reduced. This indicates that vanadium is mainly separated on the cathode at a current density below 1.1 A/cm^2 and mainly chromium is separated at a higher current density. The works waste slag on which the electrolytic separation of vanadium was tested had the following mean composition: 23% SiO_2, 11% Cr_2O_3, 1.2% V_2O_5, 18% TiO_2, 1.5% MgO, 2.5% Al_2O_3, 1.6% CaO and 35% of total iron. Since electrolytic separation of iron is at present uneconomic, a preliminary reduction of iron with carbon is necessary. It was experimentally established that the slag had a melting temperature of 1520°C and that it was very viscous. To improve the reducing conditions the slag was mixed with 10% of a blast-furnace slag (40% CaO, 39% SiO_2 and 12% Al_2O_3). The slag mixture, with an addition of some charcoal (amount not specified) was melted in a 10 kg furnace and retained for 1.5 hours at 1500°C. The reduced

metal contained 2.5 to 4% Cr and 0.5 to 0.7% V and the residual slag contained 0.2 to 0.3% V_2O_5 and 4 to 5% Cr_2O_3. In the subsequent experiments, after retaining the charge for 1.5 hours at 1500°C, a graphite anode was immersed into the slag and a direct current was applied (current density 0.8 to 0.9 A/cm^2). On the application of the current, the content of vanadium in the slag decreased to 0.09 to 0.10% and increased to up to 1% in the metal. It is concluded that the electrolytic method can improve the extraction of vanadium from slags. There are 3 figures and 3 Soviet references.

ASSOCIATION: Institut metallurgii UFAN SSSR
(The Institute of Metallurgy UFAN USSR)

SUBMITTED: May 13, 1961

Card 3/3

LEPINSKIKH, B.M.; YESIN, O.A.

Thermodynamic properties of the binary systems PbO - B_2O_3 and MnO - B_2O_3. Zhur.neorg.khim. 6 no.5:1223-1226 My '61. (MIRA 14:4)

(Lead oxide) (Boron oxide) (Manganese oxide)

S/076/61/035/012/003/008
B101/B138

AUTHORS: Musikhin, V. I., Yesin, O. A., and Lepinskikh, B. M.

TITLE: Use of solid electrolytes in emf measurements

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 12, 1961, 2710 - 2712

TEXT: Slags used as electrolytes for the examination of melts in ferrous metallurgy by emf measurements have the drawback that they react with the cell walls making the measured emf values unstable. In a previous study (Zh. prikl. khimii, 31, 689, 1958), the authors obtained well reproducible emf values by using a mixture of Al_2O_3 with 5% refractory clay as electrolyte: Al Al_2O_3 + clay Fe, C_{sat}, Al (2). In the present paper, the authors checked data obtained with this element and compared them with those obtained with a liquid slag of 40% CaO, 40% Al_2O_3, 15% B_2O_3, and 5% MgO. Results are given in the table:

Card 1/2

Use of solid electrolytes...

Emf of chain (2) at 1250°C

Liquid electrolytes			Solid electrolytes		
N_{Al}	E, mv	α_{Al}	N_{Al}	E, mv	α_{Al}
0.0036	304	0.0009	0.0036	320	0.0006
0.025	180	0.0159	0.0255	182	0.0152
0.067	127	0.0536	0.0865	120	0.0630

The almost identical values for solid and liquid electrolytes allow the calculation of emf from the equation $e = 0.1 \log(1/\alpha_{Al})$ (4). The emf values obtained with solid electrolytes are of high stability. There are 1 figure, 1 table, and 11 references: 9 Soviet and 2 non-Soviet.

ASSOCIATION: Institut metallurgii Ural'skogo filiala AN SSSR (Institute of Metallurgy of the Ural Branch AS USSR)

S/020/61/136/003/021/027
B004/B056

AUTHORS: Manakov, A. I., Yesin, O. A., and Lepinskikh, B. M.

TITLE: The Structure of the Surface Layer of Molten Niobates

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 3, pp. 644-646

TEXT: The authors deal with the problem of the formation of electric double layers on the interface between melt and air. According to published data, mainly oxygen anions will be found on the surface of the melt. According to Ref. 8, however, a displacement of the oxygen anions by large monovalent alkali cations ought to be possible. It was the purpose of the present work to check this assumption experimentally. The method is based upon measuring the surface tension σ and the surface potential ε_s on the interface between melt and air in the systems $Cs_2O - Nb_2O_5$; $K_2O - Nb_2O_5$; and $CaO - Nb_2O_5$ at 1500°C, the concentration of Cs_2O, K_2O and CaO having been varied between 0 - 50 mole%. Experiments were made in a

Card 1/5

furnace with carbon resistor. The cells with the substances were protected by means of a quartz tube against reducing atmosphere. σ was, according to Ref. 9, determined by measuring the maximum pressure in oxygen gas bubbles. ε_s was measured in the following electrolytic chain: $Pt\,|\,{}_{1}Nb_2O_5\,|\,{}_{2}O_2\,|\,{}_{3}Pt\,|\,{}_{4}O_2\,|\,{}_{5}Nb_2O_5+MeO\,|\,{}_{6}Pt$. The external platinum electrodes were in contact with Nb_2O_5 or Nb_2O_5 +MeO, respectively, which were in ZrO_2 crucibles. The middle electrode was in an oxygen current. The summational potential at the boundaries 6 (ε) and 5 (ε_s) was measured by means of the ППТВ-1 (PPTV-1) potentiometer, and referred to the potential ε_g of the gas electrode. $\Delta\varepsilon = \varepsilon + \varepsilon_s - \varepsilon_g > 0$. $\Delta\varepsilon_o = \varepsilon_o + \varepsilon_s^o - \varepsilon_g$ remained constant. The potential difference $\Delta\varepsilon_1 = \varepsilon_o - \varepsilon$ at the boundaries 1 and 6 was determined, the crucibles being connected with each other by means of a thin layer of liquid Nb_2O_5. The following values were calculated: $\Delta\varepsilon_s = \varepsilon_s^o - \varepsilon_s = \Delta\varepsilon_o - \Delta\varepsilon - \Delta\varepsilon_1$. The results are shown in Fig. 1. From

The Structure of the Surface Layer of Molten Niobates

them the conclusion is drawn that the outer plate of the double layer is formed by oxygen anions. With increasing concentration of Cs^+ or K^+ ions, a partial substitution of the O^{2-} anions occurs. The number of cations adsorbed on the interface, their surface concentration N_s, was calculated according to two methods. 1) According to the Gibbs equation for ideal solutions: $\Gamma = -\left[N(1 - N)/RT\right] \partial\sigma/\partial N$; 2) on the basis of the change Δq of the surface charge on the assumption that the double layer may be put equal to a plane capacitor, and $C = 15$ mf/cm^2: $\Delta q = \Delta\varepsilon_s C$; $N'_s = \Delta q/2nN_o e$. N_o is the Avogadro's number, e the electron charge; the number 2 takes account of the number of ions in the molecule Me_2O. The results of these calculations are given in Table 1:

Oxide	N	$\cdot 10^{10}$ mole/cm^2 (calculated from σ)	N_s (calculated from σ)	N'_s (calculated from ε_s)	N'_s/N_s
Cs_2O	0.1	2.45	0.436	0.0228	0.052
K_2O	0.1	3.18	0.415	0.0112	0.027
CaO	0.1	~0.52	0.072	0.0003	0.004

Card 3/5

The Structure of the Surface Layer of Molten Niobates

S/020/61/136/003/021/027
B004/B056

From the differences between N_s and N_s^i the following conclusions are drawn: The Me^+ ions replace, above all, niobium cations in the double layer, which are deeper and more distant from the surface than the O^{2-} anions. Only a small part of the Me^+ ions displaces O^{2-} ions from the surface. The adsorbed Me_2O are thus mainly orientated toward the surface with their oxygen anion. The more difficult displacement of the oxygen anions from the surface of the melt is explained by their easy polarizability. There are 1 figure, 1 table, and 13 references: 7 Soviet, 2 US, 1 French, 2 German, and 1 Roumanian.

ASSOCIATION: Institut metallurgii Ural'skogo filiala Akademii nauk SSSR (Institute of Metallurgy of the Ural Branch of the Academy of Sciences USSR)

PRESENTED: July 20, 1960, by A. N. Frumkin, Academician

SUBMITTED: July 9, 1960

Card 4/5

40201
S/078/62/007/009/006/007
B144/B101

24.7700

AUTHORS: Manakov, A. I., Yesin, O. A., Lepinskikh, B. M.

TITLE: Electrical conductivity of binary oxide systems containing niobium pentoxide

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 9, 1962, 2220-2225

TEXT: The electrical conductivity, $\varkappa$, in binary systems of Nb_2O_5 with up to 50 mole-% K_2O; Li_2O, CaO, Al_2O_3, Fe_2O_3, or V_2O_5 was studied at 700 - 1600°C and found to be consistent with that of similar V_2O_5 systems. Pure V_2O_5 and Nb_2O_5 are electronic semiconductors in solid and liquid phase. The systems can be subdivided into: 1) Fe_2O_3 - Nb_2O_5, V_2O_5 - Nb_2O_5, where $\varkappa$ gradually increases with rising temperature; 2) all remaining systems with a break in the $\varkappa$ curve, which is characteristic of the melting of ionic conductors. For the K_2O - Nb_2O_5 system, the melting and solidification temperatures derived from the polytherms of $\varkappa$ are fairly

Card 1/2

consistent with those of its constitution diagram. Thus, preliminary constitution diagrams were established for all Me_aO_b systems. From data for the activation energies of the conductivity and of the equivalent conductivity of electrolytic melts, and for the viscosity, it is proved that in 1) the alloys are electronic conductors independent of their quantitative composition, whereas in 2) an increasing Me_aO_b content causes a transition from electronic to ionic conductivity. There are 2 figures and 5 tables.

ASSOCIATION: Ural'skiy filial Akademii nauk SSSR (Ural Branch of the Academy of Sciences USSR)

SUBMITTED: December 7, 1961

MUSIKHIN, V.I.; LEPINSKIKH, B.M.

Platinum electrode in electrochemical studies of molten oxides.
Zhur.fiz.khim. 36 no.10:2302-2303 O '62. (MIRA 17:4)

1. Institut metallurgii Ural'skogo filiala AN SSSR.

S/076/62/036/011/002/021
B101/B180

AUTHORS: Manakov, A. I., Yesin, O. A., and Lepinskikh, B. M. (Sverdlovsk)

TITLE: Surface tension, potential, and density of molten niobates

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 11, 1962, 2317 - 2321

TEXT: In the systems Cs_2O - Nb_2O_5, K_2O - Nb_2O_5, Fe_2O_3 - Nb_2O_5 and CaO - Nb_2O_5 σ the surface tension and d the density were determined by the method of maximum pressure in a gas bubble at 1450 - 1650°C, and ε_s the surface potential was measured in the $Pt\,|\,Nb_2O_5\,|\,O_2\,;\,Pt\,|\,O_2\,|\,Nb_2O_5 + Me_xO_y\,|\,Pt$ element (1 2 3 4 5 6) at 1500°C. The basic oxides in these systems are present in industrial niobium ores and slags. Results: (1) When 10 mole% K_2O is added to Nb_2O_5, σ falls from 220 to 170 erg/cm^2. Further K_2O addition causes only a slight further reduction. The system Cs_2O - Nb_2O_5 behaves similarly, and in the systems with CaO and Fe_2O_3 σ rises linearly with basic oxide concentration.
Card 1/3

Surface tension, potential, and density...

Thus, K^+ and Cs^+ show capillary surface-activity with respect to Nb_2O_5. (2) V the molar volumes of the melts K_2O - Nb_2O_5, Fe_2O_3 - Nb_2O_5 and CaO - Nb_2O_5 vary almost linearly with the composition. (3) The temperature coefficient $\sigma' = d\sigma/dT$ of Nb_2O_5 is -0.01, while it is +0.01 for V_2O_5. (4) The expansion coefficient $\beta = dV/dT$ is $24 \cdot 10^{-3}$ for Nb_2O_5, $22 \cdot 10^{-3}$ for $K_2Nb_2O_6$, but only $5 \cdot 10^{-3}$ for V_2O_5. (5) ε_s falls with increasing Me_2O concentration. At 10 mole% the reduction $\Delta\varepsilon_s$ is $\sim$65 mv for Cs_2O, 45 mv for K_2O and 2 mv for CaO. The Cs^+ and K^+ ions thus lie at the melt - gas interface. (6) Calculated by the Gibbs equation and from Δq the change in the charge assuming that the double layer is like a flat condenser, the surface concentration of atoms is different, suggesting that the adsorbed Cs_2O and K_2O oxides are orientated toward the surface mainly by their oxygen atoms, and only to a lesser extent (3 - 5%) by the Cs^+ or K^+ cations. There are 2 figures and 3 tables.

Card 2/3

Surface tension, potential, and density... S/076/62/036/011/002/021
B101/B180

ASSOCIATION: Ural'skiy filial AN SSSR (Ural Branch of the AS USSR)

SUBMITTED: January 30, 1961

Card 3/3

S/076/62/036/012/008/014
B101/B180

AUTHORS: Manakov, A. I., Yesin, O. A., and Lepinskikh, B. M. (Sverdlovsk)

TITLE: Thermoelectromotive forces and conductivity of vanadium and niobium pentoxides

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 12, 1962, 2734 - 2740

TEXT: The paper describes measurements of the conductivity χ and the thermo-e.m.f. α in solid and liquid V_2O_5 and Nb_2O_5, and of the Hall constant in V_2O_5. The following results are given:

	V_2O_5		Nb_2O_5	
t^o, C	600	1000(liq)	1200(sd)	1500(liq)
$\Delta\varepsilon \cdot 10^{12}$, erg	1.58	2.73	3.56	6.42
	n_1 $7.0 \cdot 10^{17}$	$9.16 \cdot 10^{16}$	$3.5 \cdot 10^{16}$	$7.3 \cdot 10^{14}$

Card 1/3

S/076/62/036/012/008/014
B101/B180

Thermoelectromotive forces ...

	V_2O_5		Nb_2O_5	
n, cm^{-3}	n_2 $4.1 \cdot 10^{16}$	$1.13 \cdot 10^{16}$		
U, $cm^2/v \cdot sec$	U_1 2.2	U_n 33	22	-
	U_2 38	U_p 189		
α_{th}, $\mu v/deg$	α_1 820	-		
	α_2 1030	-	1100	-
α_{exp}, $\mu v/deg$	~700	200	950	220

$\Delta\xi$ is the activation energy of conductivity, n is the number of current carriers, U their mobility. The subscripts $_2$ give values calculated from the Hall constant. Conclusions: The oxides studied are n-type semiconductors in both states of aggregation. In solid state, their forbidden band is narrower and extrinsic conduction prevails, which changes into intrinsic conduction on melting. As the Hall constant of V_2O_5 becomes negative at below 670°C, V_2O_5 is an anomalous semiconductor whose hole

Card 2/3

Thermoelectromotive forces ...

mobility is higher than the electron. Goodman's rule stating that the width of the forbidden band in oxides of equal valencies increases with the energy of electrostatic interaction of ions, was also confirmed for CuO - CoO - MnO - MgO, Fe_2O_3 - Al_2O_3, and V_2O_5 - Nb_2O_5. There are 6 figures and 1 table.

ASSOCIATION: Ural'skiy filial AN SSSR, Ural'skiy politekhnicheskiy institut (Ural Branch of the AS USSR, Ural Polytechnic Institute)

SUBMITTED: August 8, 1961

34829

S/020/62/142/005/021/022
B110/B101

24.7700 (1385, 1137, 1138

AUTHORS: Ivanakov, A. I., Yesin, O. A., and Lepinskikh, B. M.

TITLE: Semiconductor properties of vanadium and niobium pentoxide in solid and liquid state

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 5, 1962, 1124 - 1127

TEXT: The specific electroconductivity $\varkappa$, the termo-emf, and the Hall constant of V_2O_5 and Nb_2O_5 were determined. The relatively high $\varkappa$ values and the absence of jumps on the polytherms when melting proved the semiconductor properties of V_2O_5 and Nb_2O_5 in both states. The activation energies calculated from $\varkappa = \varkappa_0 \exp(-\Delta\varepsilon/2kT)$ are much higher for molten V_2O_5 and Nb_2O_5 than for solid ones since the intrinsic conductance is likely to prevail in the molten state but the impurity conductivity dominate in the solid state. At $< 0^\circ C$, $\varkappa(V_2O_5)$ is very low ($T = -30^\circ C$:

Card 1/4

S/020/62/142/005/021/022
B110/B101

Semiconductor properties of...

$x \simeq 10^{-5}$, $\Delta\varepsilon = 0.72 \cdot 10^{-12}$) and is determined by accidental impurities. At higher temperatures, the activation energy increases due to partial dissociation of V_2O_5 to lower oxides ($\Delta\varepsilon_{430^\circ C} = 1.56 \cdot 10^{-12}$). $\Delta\varepsilon(Nb_2O_5)$ is greater than $\Delta\varepsilon(V_2O_5)$, probably due to the stronger O-Nb bond. The number of current carriers in solid state is:

$n_{imp} = \sqrt{N_{imp} \sqrt{2(2\pi m_n kT)^{3/2}/h^3}} \cdot \exp(-\Delta\varepsilon/2kT)$. The effective electron mass m_n was equated to the mass at rest, the number N_{imp} of impurity centers to the number of low-valency cations determined by chemical analysis. Results obtained for T = 130°C: $n_{imp\ 1} = 0.9 \cdot 10^{17}$; T = 1000°C: $n_{imp\ 1} = 1.6 \cdot 10^{17}$; T = 1100°C: $n_{imp\ 1} = 0.6 \cdot 10^{18}$. Since, for the impurity conductivity, $\varkappa$ is only determined by one type of current carriers, the mobility of the latter is: $u_n : K = ne u_n$. $u_n(Nb_2O_5)$ is near the values for Cu_2O and ZnO ($u \approx 100$); $u_n(V_2O_5)$ is near that for TiO_2 ($u \approx$).

Card 2/5

Semiconductor properties of...

molten state, the number of current carriers is calculated from the equation for crystals: $n = \{[2(2\pi m_n kT)^{3/2}]/h^3\} \cdot \exp(-\Delta\varepsilon/2kT)$. The higher-heated part of the sample was charged positively. V_2O_5 and Nb_2O_5 have n-type conductivity. For the thermo-emf is:
$\alpha = (k/e)\cdot[r + 2 + \ln\{2(2\pi m_n kT)^{3/2}\}/n_t h^3]$, where r = 2 in the scattering of electrons on impurity ions. As in other anomalous semiconductors, Mg_3Sb_2, ZnSb, the decrease in thermo-emf with increasing temperature is probably due to partial compensation of the electron diffusion by hole conductivity. The thermo-emf consists of: (I) the difference of electrode potentials at the boundaries Pt|melt (heterogeneous effect, α_{het}), and (II) the potential drop between the hot and cold parts of the sample (homogeneous effect, α_{hom}). From

$\alpha_{het} = 1/4F \left[\int_0^T c_{O_2}\, dT/T - \int_0^T 2/7\, c_{V_2O_5}\, dt/T \right]$, the following was obtained:

Card 3/5

Semiconductor properties of... S/020/62/142/005/021/022
B110/B101

α_{net} (liq) = 325; α_{het} (sd) = 394 μv/deg. Results of calculation: α_{hom}(liq) = -125; α_{hom}(sd) = 300 μv/deg. α_{hom} caused by diffusion of current carriers changes its sign during melting of V_2O_5. The Hall constant drops with temperature and changes its sign when passing through the melting point of V_2O_5 (670°C). In the range of proper conductivity, the negative sign of the Hall constant indicates electron conductivity. There are 1 figure, 1 table, and 13 references: 6 Soviet and 7 non-Soviet. The two references to English-language publications read as follows: J. O'. M. Bockris, Modern Aspects of Electrochemistry, No. 2, N. Y.-London, 1959. P. L. Baynton et al., J. Electrochem. Soc., 104, No. 4, 237 (1957).

ASSOCIATION: Institut metallurgii Ural'skogo filiala Akademii nauk SSSR (Institute of Metallurgy of the Ural Branch of the Academy of Sciences USSR)

PRESENTED: October 9, 1961, by A. N. Frumkin, Academician.

Card 4/5

PLINER, Yuriy L'vovich; SUCHIL'NIKOV, Sergey Ivanovich; RUBINSHTEYN, Yevsey Abramovich; LEPINSKIKH, B.M., red.; KORDVINA, N.A., tekhn. red.

[Aluminothermy in the production of ferroalloys and addition alloys] Aliuminotermicheskoe proizvodstvo ferrosplavov i ligatur. Moskva, Metallurgizdat, 1963. 174 p. (MIRA 16:10)

(Iron alloys--Metallurgy) (Aluminothermy)

VECHER, Nikolay Aleksandrovich; IVANOV, N.I., retsenzent; KULAKOV, A.M., retsenzent; LEPINSKIKH, B.M., red.; BAS'YAS, I.P., red.; MIKHAYLIKOV, S.V., red.; TSIEGIN, A.S., red.; BUR'KOV, M.M., red.izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Highly efficient open-hearth furnace performance] Vysokoproizvoditel'naia rabota martenovskikh pechei. Moskva, Metallurgizdat 1963. 270 p. (MIRA 16:8)
(Open-hearth furnaces)

SERGIN, B.I. (Sverdlovsk); YESIN, O.A. (Sverdlovsk); LEPINSKIKH, B.M. (Sverdlovsk)

Kinetics of the interaction of copper sulfide and cuprous oxide. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor delo no.1:87-90 Ja-F '63.
(MIRA 16:3)

(Copper—Metallurgy)

LEPINSKIKH, B.M. (Sverdlovsk); YESIN, O.A. (Sverdlovsk); ANAN'IN, A.A. (Sverdlovsk)

Studying the electromotive force in processes of cast iron modification by magnesium addition alloys. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.4:117-120 Jl-Ag '63. (MIRA 16:12)

LEPESKIN, B.N.; VATOLIN, N.A.

Surface tension and density of iron-sulfur and iron-phosphorus melts. Izv. vys. ucheb. zav. Chern. met. 6 no.7:109-112 Jl '63. (MIRA 16:8)

1. Institut metallurgii Ural'skogo filiala AN SSSR, Sverdlovsk.
(Iron alloys—Density) (Surface tension)

ACCESSION NR: AT4035155 S/2765/64/000/000/0148/0153

AUTHOR: Manakov, A. L.; Yesin, O. A.; Lepinskikh, B. M.

TITLE: Thermoelectromotive forces and the electrical conductivity of vanadium and niobium pentoxides

SOURCE: Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 6th, 1961. Fiziko-khimicheskiye osnovy* proizvodstva stali (Physicochemical basis of steel production); trudy* konferentsii. Moscow, Izd-vo "Nauka," 1964, 148-153

TOPIC TAGS: vanadium, niobium, vanadium pentoxide, niobium pentoxide, electrical conductivity, thermoelectromotive force, metal oxide conductivity

ABSTRACT: To confirm the previously established occurrence of conductive electrons in many solid and molten oxides, the authors measured the electrical conductivity and thermoelectromotive forces of solid and molten V_2O_5 and Nb_2O_5, identified the nature of the conductivity by calculating the energy of activation and evaluated the number and mobility of current carriers. Electrical conductivity was measured with a bridge circuit using an EO-7 electron oscillograph and a ZG-11 audiogenerator. The electrodes were 0.5 mm platinum wires, and the temperature was measured with a platinum-platinum-rhodium thermocouple immersed in the melt. The crucible was of zirconium dioxide in a carbon-resistance oven.

Card 1/4

ACCESSION NR: AT4035155

The temf in V_2O_5 was measured in a 15 mm diameter quartz U-tube, placed in a crucible furnace with a thermostat. From both tube ends, platinum-platinum-rhodium thermocouples were immersed into the molten V_2O_5 and the cold thermocouple junctions were connected to a PPTB-1 potentiometer which measured the t° and temf in both parts of the melt. The temf in Nb_2O_5 was measured in a ZrO_2 cylindrical crucible (d = 25 mm, h = 100 mm) placed in a carbon-resistance quartz-lined oven. The lower crucible section was thermoinsulated which produced a thermal gradient over the crucible height, thus permitting the determination of temf with the use of thermocouples. The results shown in Figs. 1 and 2 of the Enclosure indicate that the oxides are electron semiconductors with intrinsic conductivity in the liquid state and admixture-induced conductivity in the solid state. Orig. art. has: 4 figures , 5 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 30Apr64	ENCL: 02
SUB CODE: MM, EM	NO REF SOV: 014	OTHER: 006

Card 2/4

ENCLOSURE: 01

ACCESSION NR: AT4036155

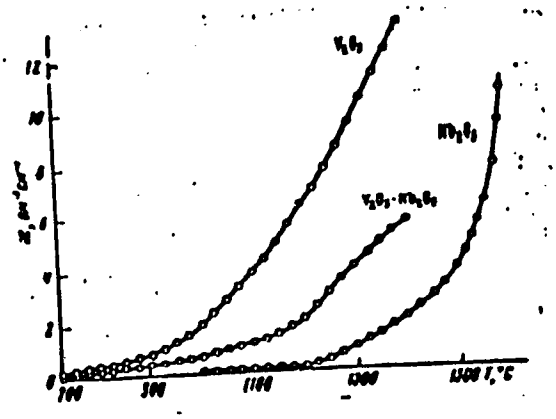


Fig. 1. Variation in the electrical conductivity of the compounds V_2O_5, Nb_2O_5 and $V_2O_5 \cdot Nb_2O_5$ with temperature.

Card 3/4

ACCESSION NR: AT4035155

ENCLOSURE: 02

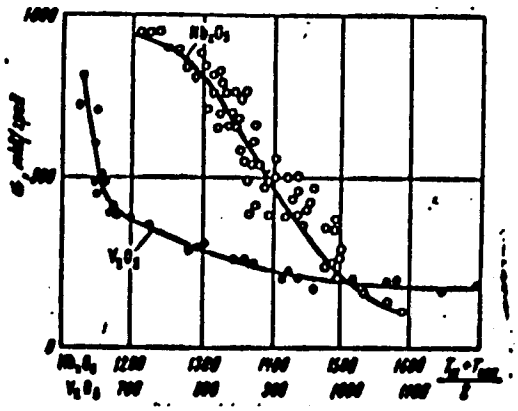
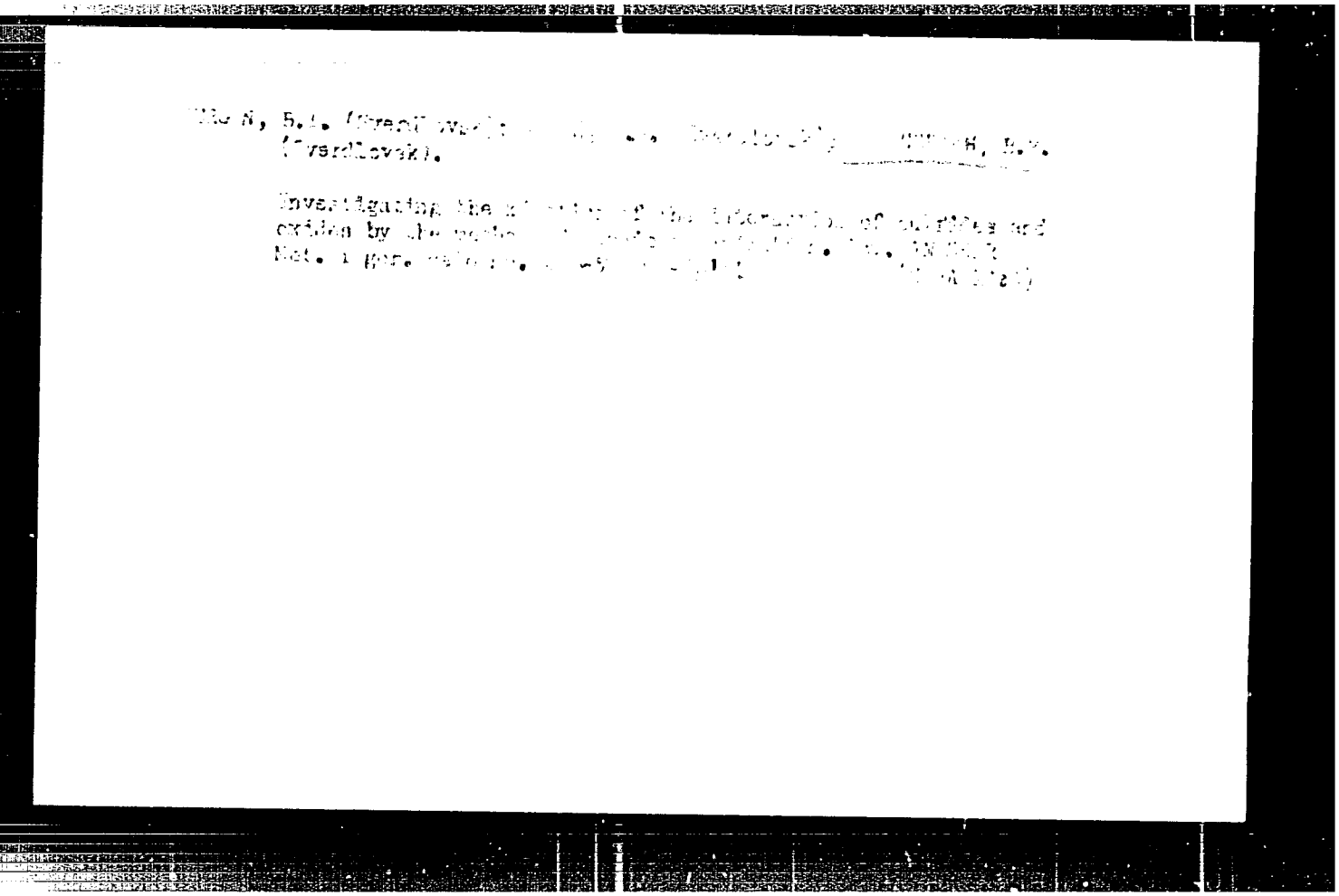


Fig. 2. Variation in the differential thermoelectromotive force of V_2O_5 and Nb_2O_5 with temperature.

Card 4/4



[illegible], D.M.; [illegible], [illegible].

Study of the processes of metal casting of cast iron by means of high temperature [illegible]. Izv. vys. ucheb. zav.; chern. met. no. 5:[illegible] 1962. (MIRA [illegible])

1. Institut metallurgii [illegible] Akademii nauk [illegible].

SRYVALIN, I.T.; YESIN, O.A.; LEPINSKIKH, B.M.

Thermodynamic properties of magnesium solutions in nickel, lead, and silicon. Zhur. fiz. khim. 38 no.5:1166-1172 My '64. (MIRA 18:12)

1. Institut metallurgii Ural'skogo filiala AN SSSR, Uralskiy politekhnicheskiy institut i Permskiy politekhnicheskiy institut. Submitted May 23, 1963.

SHAVRIN, S.V., kand. tekhn. nauk, red.; LEBEDEV, B.M., kand. tekhn. nauk, red.; YUKSEL', G.S., kand. tekhn. nauk, red.

[Transactions of the First Sverdlovsk Scientific and Technical Conference of Young Scientists] Trudy Sverdlovskoi nauchno-tekhnicheskoi konferentsii molodykh uchenykh. Sverdlovsk, AN SSSR. Pt.1. 1964. 89 p. (MIRA 18:2)

1. Sverdlovskaya nauchno-tekhnicheskaya konferentsiya molodykh uchenykh, 1st, Sverdlovsk, 1963.

LEPINSKIKH, B.M.; ANAN'IN, A.A.

Density of liquid cast iron treated with magnesium alloys.
Lit. proizv. no.1:21-22 Ja '65.

(MIRA 18:3)

L 29250-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6019316 SOURCE CODE: UR/0370/65/000/004/0068/0071

36

B

AUTHOR: Manakov, A. I. (Sverdlovsk); Lepinskikh, B. M. (Sverdlovsk)

ORG: none

TITLE: Surface tension and density of oxide melts containing vanadium or niobium pentoxide

SOURCE: AN SSSR. Izvestiya. Metally, no. 4, 1965, 68-71

TOPIC TAGS: surface tension, density, inorganic oxide, niobium compound, vanadium compound

ABSTRACT: There is little data available on the physico-chemical properties of oxide melts containing vanadium or niobium pentoxides although they are of considerable interest to metallurgical production. With this in mind the surface tension (σ) and density (d) of a number of binary systems containing Nb_2O_5 and V_2O_5 were determined. The surface tension and density of melts of the systems below were measured: K_2O-Nb_2O_5, Cr_2O_3-Nb_2O_5, CaO-Nb_2O_5, Fe_2O_3-Nb_2O_5 and CaO-V_2O_5, Fe_2O_3-V_2O_5, Cr_2O_3-V_2O_5 at 1200-1500°C. The cations K^+ and Cs^+ in contrast to Ca^{2+} and Fe^{3+} are capillarily active in the molten niobates. In systems containing V_2O_5 the added oxides (in the range of the compositions studied) increase

UDC: 669:532.61

Card 1/2

L 29250-66
ACC NR: AP6019316

surface tension. The change in the molar volumes of melts of the indicated systems with composition is examined. The thermal coefficient $\gamma = d\sigma/dT$, $\beta = dV.dT$ are found for molten vanadium and niobium pentoxides. Their values are discussed starting from the quasi-molecular structure of melts in the group V oxides. Orig. art. has: 2 figures and 2 tables. [JPRS]

SUB CODE: 07, 20 / SUBM DATE: 21Jan64 / ORIG REF: 012 / OTH REF: 008

Card 2/2 cc

ZHUCHKOV, V.I. (Sverdlovsk); LEVINSKIKH, B.M. (Sverdlovsk); MIKHAYLOVSKIY, A.I. (Sverdlovsk); Prinimal uchastiye: ZAKHAROV, V.F.

Electric conductivity and thermoelectromotive force of solid manganese oxides at high temperatures. Izv. AN SSSR. Met. no.4:47-50 Jl-Ag '65. (MIRA 18:8)

L 08191-67 EWT(m)/EWP(t)/ETI IJP(c) JD/WW/JW/JG/JH

ACC NR: AP6030498 (A) SOURCE CODE: UR/0149/66/000/004/0022/0027

AUTHOR: Tikhomirov, A. A.; Sryvalin, I. T.; Yosin, O. A.; Lopinskikh, B. M. 43 B

ORG: Perm Polytechnic Institute, Department of Physical Chemistry (Permskiy politekhnicheskiy institut, Kafedra fizicheskoy khimii)

TITLE: Thermodynamic properties of liquid solutions of the aluminum-tin system

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 4, 1966, 22-27

TOPIC TAGS: solution property, aluminum, tin, thermodynamic property

ABSTRACT: The investigation was made by the method of electromotive force. One of the electrodes was liquid aluminum, and the other a liquid alloy of Al-Sn of varying composition. The electrolyte was a mixture of anhydrous sodium and potassium chlorides in equimolar proportion, with an addition of $AlCl_3$. The electrolytic cell was made of a lump of magnesite brick with blind openings for the electrodes and the thermocouple. The current carriers were tungsten wires protected by alundum jackets. The cell was placed at the bottom of a quartz test tube with a diameter of 50-60 mm. The experiments were carried out in an electric resistance furnace. The experimental results are given in tabular form. The following conlusions were drawn:
1) Measurement of the electromotive force was made at temperatures from 700 to 850°;
2) the system studied exhibited measurable positive deviations from Raoult's law.

Card 1/2 UDC: 669.715+669.65

L 08191-67

ACC NR: AP6030493

evidently due to the presence of large deviations of the heat capacity from Kopp's law; 3) the dependence of the activities of the components on the composition, to a known approximation, can be described by the formulas for regular solutions; 4) the thermodynamic data obtained agree satisfactorily with the results of calorimetric and electronographic investigations. Orig. art. has: 5 formulas, 5 figures and 3 tables.

SUB CODE: 07, 20/ SUBM DATE: 27Mar65/ ORIG REF: 008/ OTH REF: 001

Card 2/2 dda

BENUA Yuliy Yul'yevich; KORSAKOV, Vadim Mikhaylovich; ABDEYEV, G.K., kand. tekhn. nauk, retsenzent; LEPINSKIY, V.A., inzh., retsenzent; ASHIK, V.V., prof., nauchnyy red.; STOLYARSKIY, L.L., red.; KRYAKOVA, D.M., tekhn. red.

[Vessels on an air cushion]Suda na vozdushnoi podushke. Leningrad, Sudpromgiz, 1962. 119 p. (MIRA 16:3)
(Ground-effect machines)

GAYSIN, B.M.; LEPITOV, F.F.

Improving the laying of rolling-out hearths of gas-oil heat-treating furnaces. Mashinostroenie no.6:106 N-D '62.
(MIRA 16:2)
(Heat-treating furnaces--Construction)

GAYSIN, B.M.; LEPITOV, F.F.

Improved bricklaying of roll-out hearth bottoms in petroleum gas heating furnaces. Lit. proizv. no.8:38 Ag '63. (MIRA 16:10)

LEPITRE, H.; GUNTLER, H.

AIRPLANE PROPULSION METHODS. p. 197

LETECKY OBZOR (ministerstvo deprovy) Praha, Czechoslovakia. Vol. 3, no. 4, Apr. 1959

Monthly List of East European Accessions (EEAI), LC.Vol. 9, no. 2, Feb 1960
Uncl.

LEPITSKIY A. V.

USSR/Inorganic Chemistry. Complex Compounds C

Abs Jour : Referat. Zhurnal Khimiya No 6 1957 18844

Author : V.A. Pchelkin, A. V. Lepitskiy V.I. Spitsyn
Inst : -
Title : Study of Isotopic Interchange Among Salts of Niobic Acid of Various Types.

Orig Pub : Zh. Neorgan. Khimii, 1956 1 No 4, 841-85:

Abstract : Using Nb^{95} the isotopic interchange in the heterogenous system of $K_{14}Nb_{12}O_{37}.27H_2O$ (?) and $KNbO_3.2H_2O$ at 20° was studied. The interchange between the precipitates I and II and saturated solutions of I and II occurs practically instantly in the amount of 60% and does not increase further in the course of time. The solubility of I in the saturated solution of II is 0.0423 g/ml at 20°. Taking into consideration the constancy of the refraction indices of the initial niobates and of the bottom phases, the authors conclude that I and II do not interact one

Card 1/3 -23-

Abs Jour : Referat. Zhurnal Khimiya No 5 1957 18844

with the other and refute the possibility of formation of $8K_2O.7Nb_2O_5\ 32H_2O$ (C. Marignac., Ann chim. phys., 1866 8,5) under the conditions of the experiment. The interchange between I and II take place in the amount of 5 to 6% in the average. The authors explain the low degree of the isotopic interchange by the insignificant degree of the hydrolysis of the ion $Nb_{12}O_{37}^{14-}$ into NbO_3^- or by the presence of "spheres", in which the ions NbO_3^- are arranged inside the complex ion $Nb_{12}O_{37}^{14-}$. The interchange between the precipitate of $Na_{14}Nb_{12}O_{37}.32H_2O$ (III) and the saturated solution of III takes place instantly in the amount of 26 to 30%. The interchange between the precipitate of $Ba(NbO_3)_2$ and the saturated solution of IV does not exceed 2 to 3% even in the duration of 120 hours. In the system of anhydrous IV - III the interchange degree attains the maximum value of 2% after 36 hours and does not change further. The experiments of using diverse organic and inorgan-

L 16036-65 EWP(e)/EPA(s) /EWT(m)/EPF(n)-2/EPA(w)-2/EWP(t)/EWP(b)/EWA(h) Pab-10/ Pt-10/Pu-4 IJP(c)/SSD/ASD(a)-5/AFWL/ASD(m)-3/ASM(p)-2/AFETR/ESD(gs)/

ACCESSION NR: AP4044739 ESD(t) JD/WH S/0153/64/007/003/0373/0377

AUTHORS: Strizhkov, B.V.; Lepitskiy, A. V.

TITLE: Study of the properties of solid solutions of titanates and niobates of divalent metals

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 7, no. 3, 1964, 373-377

TOPIC TAGS: divalent metal titanate, divalent metal niobate, ceramic, barium lead titanate, barium lead niobate, strontium lead niobate, solid solution, titanyloxalate thermal decomposition, ceramic property, density, porosity, water adsorption, x ray analysis, crystal lattice parameter, electrophysical property, dielectric property

ABSTRACT: The properties of ceramics of divalent metal titanate and niobate solid solutions [$(Ba,Pb)TiO_3$, $(Ba,Pb)Nb_2O_6$, $(Sr,Pb)Nb_2O_6$] obtained by thermal decomposition of corresponding complex compounds were investigated. Compressed samples of a powdered solid solution of 88 mol% Ba-12 mol% Pb titanate, obtained by thermal decomposition of the titanyloxalate, were heated for 30 minutes at temperatures in

Card 1/3

L 16036-65
ACCESSION NR: AP4044739

the 1100-1350C range. The ceramic properties (specific weight, porosities, water adsorption) of the products were determined; the most dense ceramic was obtained at 1200C. X-ray analysis showed the ratio of the c/a lattice parameters decreased as the temperature was increased. A study of the electro-physical properties showed the dielectric and piezoelectric properties improved with increasing temperature. The Curie point was maximum (194C) in samples heated to 1200C; the second phase transition temperature was below -20C in all samples. Thus, in comparison to barium titanate, the Curie point was more than 60 degrees higher, while the second phase transition temperature was sharply reduced in the Ba-Pb titanate solid solution. The following solid solutions of Pb niobates with Ba and Sr niobates were prepared by thermal decomposition of the hexaniobates: 60 mol% $Pb(NbO_3)_2$-40 $Ba(NbO_3)_2$, and 80-20 and 70-30 mol% $Pb(NbO_3)_2$-$Sr(NbO_3)_2$. Samples were compressed and baked at temperatures in the 1100-1300C range. The ceramics fired at 1250C were the most dense. All the samples except those fired at 1100 and 1150C showed ferroelectric properties which the individual titanates did not have. The dielectric and piezoelectric properties improved with firing temperature up to 1250C; in the 1300C samples these properties were somewhat lower.

Card 2/3

L 16036-65
ACCESSION NR; AP4044739

"X-ray analysis of the solid solution of barium lead titanate, conducted by Yu. N. Venevtsev and V. V. Chkalov, at our request, indicated ..... The authors acknowledge their help and kind attention." Orig. art. has: 4 tables and 1 equation.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova (Moscow State University); Akusticheskiy institut AN SSSR Kafedra radiokhimii (Acoustical Institute AN SSSR Radiochemical Department)

SUBMITTED: 23Oct62 ENCL: 00 SUB CODE: MM,SS

NR REF SOV: 007 OTHER: 000

Card 3/3

LEPKA, I.

Exhibition of the Comenius map of Moravia. Sbor zem 69 no.2: 135-136 '64

LEPKA, R.

LEPKA, R. Activity of the Research Institute for Vegetables in Olomouc.
p. 48. VOL. 4, no. 1,
Jan. 1957. VESTNIK Praha, CZECHOSLOVAKIA

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957

LEPKE, Ye., kapitan dal'nego plavaniya

Remarks on IA.I. Dunaevskii's book "Striving for the buoyancy of ships." Mor. flot 22 no.3:46 Mr '62. (MIRA 15:2)
(Trim (Of ships))
(Dunaevskii, IA.I.)

PETKEVICH, Georgiy Ivanovich [Petkevych, H.I.]; SUBBOTIN, S.I., prof., otv.red.; LEPKIY, S.D., red.; LISOVETS, O.M. [Lysovets', O.M.], tekhn.red.

[Seismic logging in the Ciscarpathian trough] Seismokarotazhni doslidzhennia v Peredkarpats'komu prohyni. Kyiv, Vyd-vo Akad. nauk URSR, 1960. 97 p. (MIRA 14:1)

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LEPKIY, S.D. [Lepkyi, S.D.]

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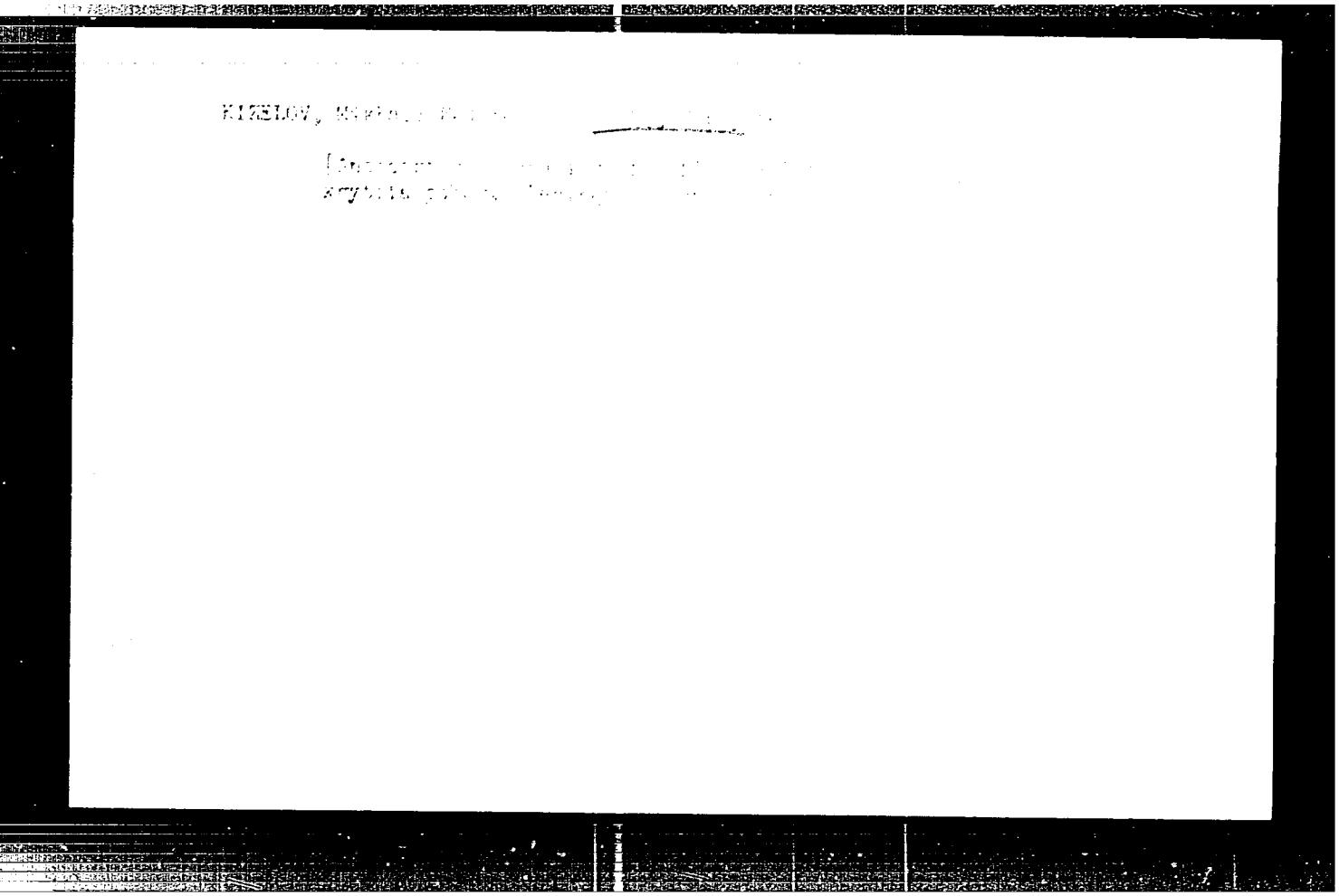
1. Institut geologicheskikh nauk AN UkrSSR.



LEPKOV, L.P.; YASTREBOVA, V.F.; CHEKAREV, I.I.; MILINKOVICH, V.I.; SHILKINA, L.M.; AYBASHEVA, T.V., red.

[Manual of estimates and norms for the overhauling of buildings and structures in railroad transportation] Smetno-normativnyi spravochnik po kapital'nomu remontu zdanii i sooruzhenii zheleznodorozhnogo transporta. Moskva, Transport, Pt.2. Sec.2. 1965. 184 p. (MIRA 18:8)

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1. Vorgelegt von Akademiemitglied D.Ivanoff [Ivanov, D.].

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Microbiological findings on the ear ossicles in chronic middle ear infection. Cesk. otolaryng. 14 no.4:237-239 Ag '65.

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Late postradiation injury of the larynx in relation to the intensity of local reaction during x-ray treatment of the cancer of larynx and lower pharynx. Nowotwory 15 no.2:173-179 Ap-Je '65.

1. Z Kliniki ORL Slaskiej AM w Zabrzu (Kierownik: prof. dr. med. T. Ceypek) i z Instytutu Onkologii w Gliwicach (Dyrektor: dr. med. J. Swiecki).

CEYPEK, Tadeusz; LEPKOWSKI, Aleksander; SZYMCZYK, Kazimierz

Sensitization to acoustic trauma and pneumatization of the mastoid. Otolar. polska 10 no.3-4:329-334 1956.

1. Z Kliniki Otolaryngologicznej S. A. M. w Zabrzu Kierownik: prof. dr. T. Ceypek i z Instytutu Medycyny Pracy w Przemysle Weglowym i Hutniczym Oddzial Otolaryngologiczny Dyrektor: prof. dr. B. Nowakowski. Zabrze 1, ul. Curie-Sklodowskiej 10.

(MASTOID, physiology,
pneumatization, relation to acoustic trauma (Pol))
(NOISE, injurious effects,
acoustic trauma, relation to pneumatization of mastoid (Pol))
(HEARING DISORDERS,
acoustic trauma, relation to pneumatization of mastoid (Pol))

POLAND/Accustics - Audition and Speech J-8

Abs Jour : Ref Zhur - Fizika, No 2, 1959, No 4162

Author : Ceypek T., Lepkowski A., Szymczyk K.
Inst : -
Title : The Acoustic Trauma and Pneumatization of the Mastoid

Orig Pub : Bull. Soc. amis sci. et lettres Poznan, 1956-1957 (1958), B14, 215-219

Abstract : The audibility thresholds were measured, with respect to the air conduction and bone conduction in 200 workers, working from one half to 55 years under high industrial noise conditions, and x-ray photographs were taken of the mastoids. From the degree of pneumatization of the latter, the workers were divided into three groups (I-small, II-medium, III-large). Curves of the distribution of the deterioration of hearing in decibels were similar in form for all groups, but different in details. Thus, in the case of air conduction, the percentage with loss of hearing of approximately 75 decibels turned out to be considerably larger,

Card : 1/2

LEFKOWSKI, Andrzej

Effect of the localization of the bone microphone and of the force of its adhesion on the liminal value of bone conduction. Otolaryng. Pol. 18 no.1:121-127 '64.

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(HEARING TESTS
tuning-fork exam., efficiency (Pol))

LEPKOWSKI, Andrzej

Capacity to feel vibrations within the sphere of audible tones in the audiometric examination of bone conduction. Otolaryng. pol. 17 no.2:163-166 '63.

1. Z Instytutu Medycyny Pracy w Przemysle Weglowym i Hutniczym Dyrektor: prof. dr B. Nowakowski Kierownik Oddzialu Laryngologicznego prof. dr T. Ceypek.

(AUDIOMETRY) (VIBRATION)

LEPKOWSKI, M.

Pulmonary tuberculosis in congenital heart disease. Pol. Przegl. Pol. 8 no.2:131-133 '65.

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LEPACKI, Marek; [illegible]

Surgical treatment of cystic disease of the lung. Pol. przegl. chir. 36 no.4:355-360 Ap '64.

1. Z Kliniki Chirurgicznej Instytutu Gruzlicy (Kierownik: prof. dr. med. L. Manteuffel).

LEPIA, K., WAKSMAN, C.

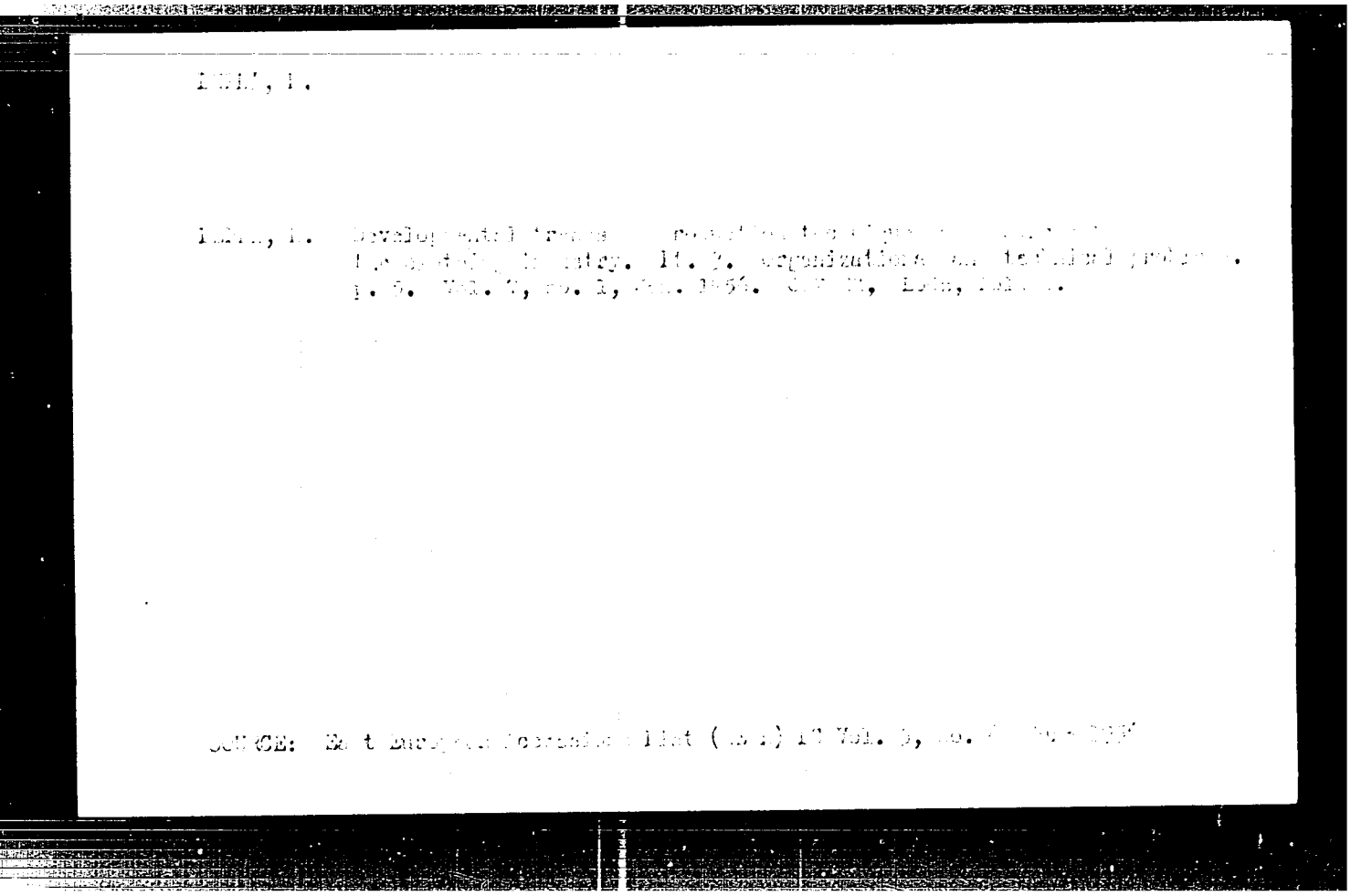
Trends in the development of technology and organization of production in the clothing industry. p. 225

Odziez

Lodz

Vol. 6, no. 11, Nov. 1955

Source: East European Accessions List EEAL), LC. Vol. 5, no. 3, March 1956



LEPLA, K.

Preliminary remarks on the draft of the plan of the Clothing Industry Union for the years 1959-1965. p. 49.

ODZIEZ. (Centraine Zarzady Przemyslu Dziewiarskiego, Odziezowego i Ponczoszniczego) Lodz, Poland. Vol. 10, no. 2, February 1959

Monthly list of East European Accession (EEAI) LC, Vol. 8, no. 7, July 1959.

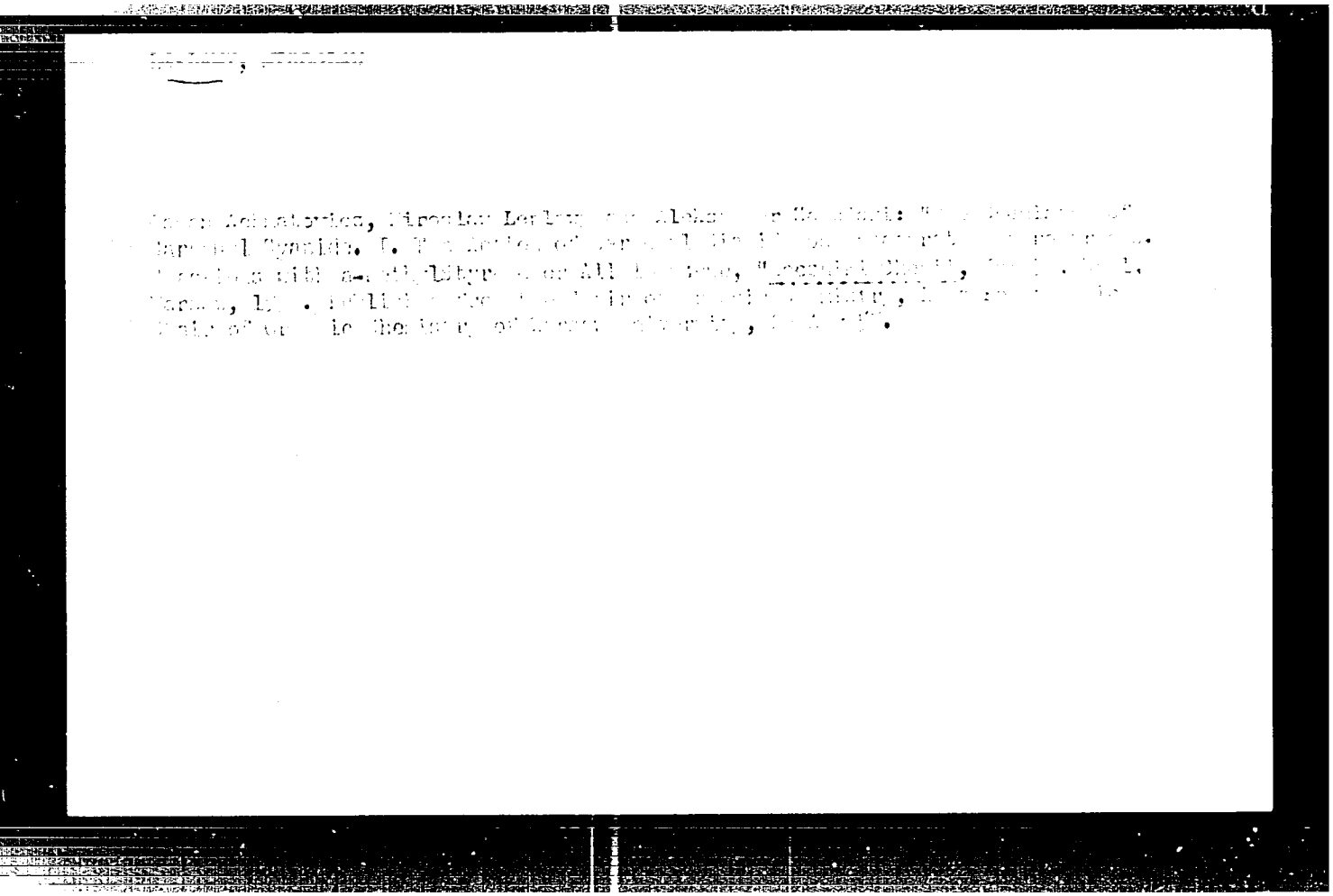
Uncl.

LEPLAWY, M.

5 3

The chemistry of carbonyl cyanide. I. The reaction between carbonyl cyanide and α-methylstyrene or allylbenzene. O. Achmatowicz, M. Leplawy, and A. Zamojski (Warsaw Univ.). *Bull. acad. polon. sci.*, Classe III, 3, 581-4(1955)(in English); see *C.A.* 51, 1087*b*.—II. The action of carbonyl cyanide on 1,1-diphenylethylene. Formation of a compound believed to be a cyclopropane derivative. O. Achmatowicz and M. Leplawy. *Ibid.* 547-52.—$Ph_2C:CH_2$ and $CO(CN)_2$ give 10% $C_{17}H_{12}N_2$, m. 157°, 3% C_8H_{14}, m. 72°, HCN, resin, and 60% $Ph_2C.CH(CN).C(CN)OH$ (I), m. 109°, probably formed by internal aldol condensation from the intermediate $Ph_2C(COCN)CH_2CN$. I hydrolyzes to a dibasic *acid* (II) [*di-Me ester* (III), m. 125-7°]. Gentle hydrolysis of I gives a monoamide (IV). Acidification of II gives a *lactol* (V) $Ph_2C.CH_2.CO.O.C(OH)CO_2H$, m. 163.5-6.5° (*acetate*, m. 144-5°). With $SOCl_2$ and then MeOH V gives a *di-Me deriv.*, m. 87.5-9°. Heating V above the m.p. splits CO_2 to give $Ph_2C.CH_2.CO.O.CHOH$, m. 108.5-10.5°. Acidification of IV in the cold with dil. HCl gives $Ph_2C.CH_2.CO.O.C(OH)CONH_2$, m. 207-9°, which by gentle warming with dil. alkali and acidification gives V. Keeping V several days in cold alkali, or warming the soln. gently gives an acid isomeric with II [*di-Me ester* (VI), m. 125°]. III does not react with AcCl but VI gives an *acetate*, m. 103-5°. III and VI are probably stereoisomers.

H. M. Leicester



LEPIAWY, M.

3

The chemistry of carbonyl cyanide. I. The action of carbonyl cyanide on unsaturated hydrocarbons. Reactions with α-methylstyrene and allylbenzene. O. Achmatowicz, M. Lepiawy, and A. Zamojski (Inst. Technol., Łódź, Poland). *Roczniki Chem.* 30, 215–32(1956)(English summary).—Carbonyl cyanide (I) reacts with the following compds.: $PhMeC{:}CH_2$ (II), $PhCH_2CH{:}CH_2$ (III), $(p\text{-}MeC_6H_4)_2C{:}CH_2$, $CH_2{:}CMeCMe{:}CH_2$, and $Ph_2C{:}CH_2$; it does not react with $PhCH{:}CHMe$, $PhCH{:}CMe_2$, $PhCH{:}CHCH{:}CHPh$, and $Ph_2C{:}CHCH{:}CPh_2$. In particular, II reacts with 1 or 2 moles of I. To a soln. of 11.8 g. II in 30 ml. hexane 8.05 g. I is added slowly with stirring under anhyd. conditions, maintaining the temp. at 20–6°, while HCN is caught in a trap. The yield of unstable *β-phenylvinylacetyl cyanide* (IV) is 17.15 g. A soln. of 1 g. IV in 12 ml. dioxane and 3 ml. water gives after several hrs. at room temp. 0.6 g. *β-phenylvinylacetic acid* (V), m. 48–9.5° (from petr. ether), *anilide* (VI), m. 126–7° (from C_6H_6-petr. ether). VI (1 g.) is also obtained from 1.1 g. IV in 10 ml. C_6H_6-petr. ether on standing with 1 ml. aniline. V (0.1 g.) is isomerized by aq. NaOH to give 0.09 g. *β-methylcinnamic acid* (VII), m. 94–7° (from water). When 7 g. IV is distd. at reduced pressure there is obtained 4.83 g. *β-methylcinnamoyl cyanide* (VIII), $b_{4.6}$ 107°, m. 40.5–2.5° (petr. ether). A mixt. of 1.5 g. VIII and 100 ml. 1% NaOH heated 10 min. gives a soln. which on acidification yields 1.25 g. VII, m. 97–8°. A soln. of 0.07 g. VIII in 3 ml. dioxane gives with 1 ml. 1% NH_4OH 0.03 g. *β-methylcinnamamide*, m. 118–19°. Aniline and VIII give *β-methylcinnamanilide*, m. 120°. A soln. of 1 g. VIII in 15 ml. Et_2O and 0.55 g. $PhNHNH_2$ give 0.9 g. *β-methylcinnamic acid phenylhydrazide*, m. 120.5°. VIII was prepd. for comparison. A mixt. of 10 g. VII and 9 g. PBr_5 in 10 ml.

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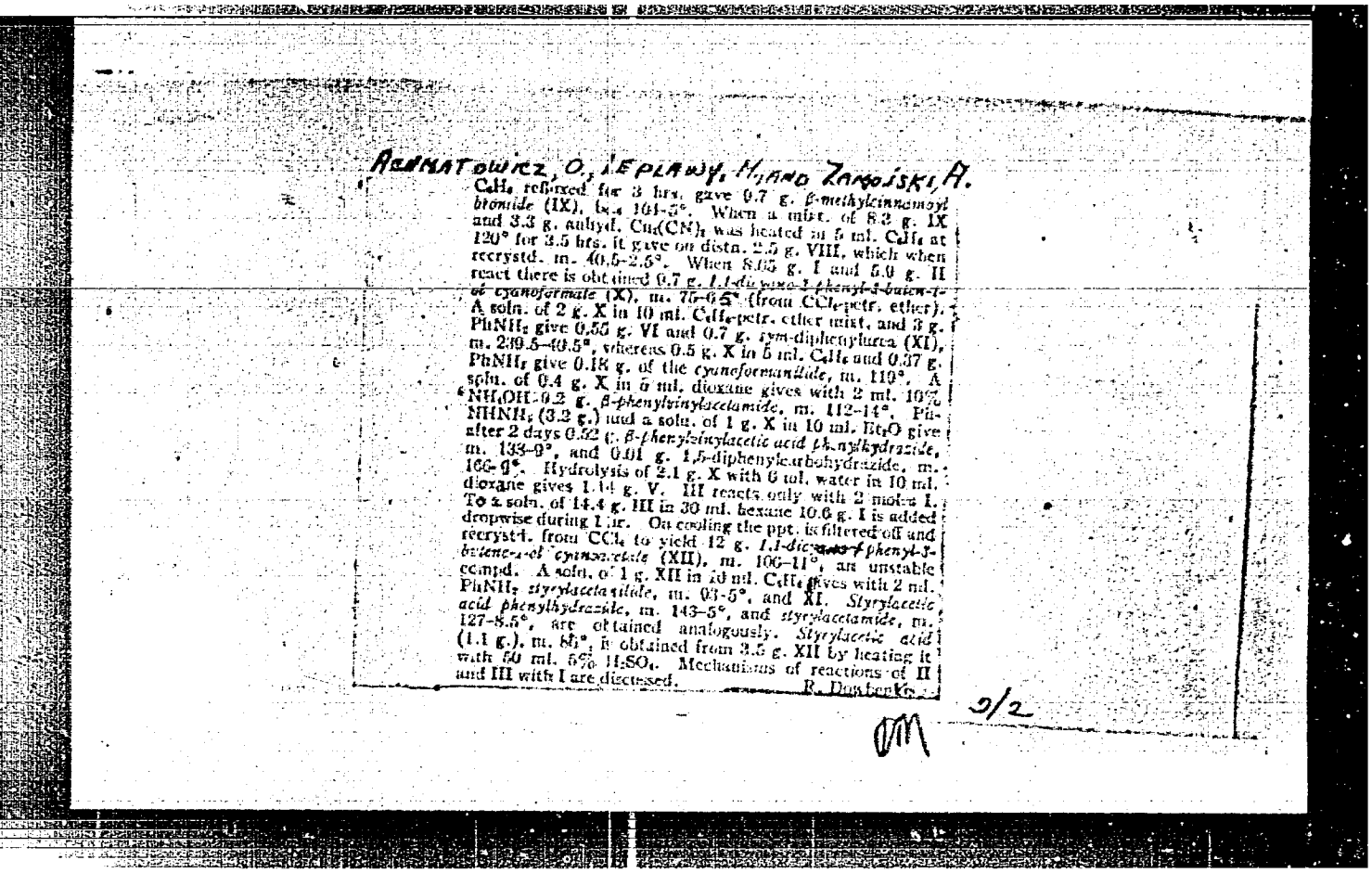

ARMATOWICZ, O., LEPLAWY, H., AND ZAMOJSKI, A.

C_6H_6 refluxed for 3 hrs. gave 0.7 g. *β-methylcinnamoyl bromide* (IX), b.p. 161–5°. When a mixt. of 8.2 g. IX and 3.3 g. anhyd. $Cu_2(CN)_2$ was heated at 5 ml. C_6H_6 at 120° for 3.5 hrs. it gave on distn. 2.5 g. VIII, which when recrystd. m. 40.5–2.5°. When 8.05 g. I and 5.0 g. II react there is obtained 0.7 g. *1,1-dicyano-3-phenyl-3-buten-1-ol cyanoformate* (X), m. 75–6.5° (from CCl_4-petr. ether). A soln. of 2 g. X in 10 ml. C_6H_6-petr. ether mixt. and 3 g. $PhNH_2$ give 0.55 g. VI and 0.7 g. *sym-diphenylurea* (XI), m. 239.5–40.5°, whereas 0.5 g. X in 5 ml. C_6H_6 and 0.37 g. $PhNH_2$ give 0.18 g. of the *cyanoformanilide*, m. 119°. A soln. of 0.4 g. X in 5 ml. dioxane gives with 2 ml. 10% NH_4OH 0.2 g. *β-phenylvinylacetamide*, m. 112–14°. $PhNHNH_2$ (3.2 g.) and a soln. of 1 g. X in 10 ml. Et_2O give after 2 days 0.52 g. *β-phenylvinylacetic acid phenylhydrazide*, m. 133–9°, and 0.01 g. *1,5-diphenylcarbohydrazide*, m. 166–9°. Hydrolysis of 2.1 g. X with 6 ml. water in 10 ml. dioxane gives 1.14 g. V. III reacts only with 2 moles I. To a soln. of 14.4 g. III in 30 ml. hexane 10.6 g. I is added dropwise during 1 hr. On cooling the ppt. is filtered off and recrystd. from CCl_4 to yield 12 g. *1,1-dicyano-3-phenyl-3-butene-1-ol cyanoacetate* (XII), m. 106–11°, an unstable compd. A soln. of 1 g. XII in 10 ml. C_6H_6 gives with 2 ml. $PhNH_2$ *styrylacetanilide*, m. 93–5°, and XI. *Styrylacetic acid phenylhydrazide*, m. 143–5°, and *styrylacetamide*, m. 127–8.5°, are obtained analogously. *Styrylacetic acid* (1.1 g.), m. 85°, is obtained from 3.5 g. XII by heating it with 60 ml. 5% H_2SO_4. Mechanisms of reactions of II and III with I are discussed.

R. Dumbenko

2/2

M. LEPLAWY

1

The chemistry of carbonyl cyanide. VI. New interpretation of the reaction between carbonyl cyanide and 1,1-diphenylethylene. O. Achmatowicz and M. Leplawy (Univ. Warsaw). *Bull. acad. polon. sci., Sér. sci., Chim., géol. et géograph.* 6, 409–15(1958)(in English); cf. *C.A.* 52, 6333a. —The products of the reactions between $CO(CN)_2$ and $Ph_2C{:}CH_2$ or $(p\text{-}MeC_6H_4)_2C{:}CH_2$ have the structures $CH_2.C(CN)_2.O.CPh_2$ (I) or $CH_2.C(CN)_2.O.C(C_6H_4Me\text{-}p)_2$ (II), and do not contain OH groups or 3-C rings, unlike supposed earlier (cf. *C.A.* 51, 8013*f*). The evidence is supplied by infrared absorption spectra, analogy with Diels-Adler condensation (*C.A.* 52, 6333*d*), and the following reactions. I (m. 108°) and II (m. 94–5°) gently heated in acetone with 20% H_2SO_4 yielded $HOCPh_2CH_2CO_2H$ and $HO(p\text{-}MeC_6H_4)_2CCH_2CO_2H$, resp. I heated with glacial AcOH at 60° yielded the unstable oily *AcOCPh₂CH₂C(CN)₂OH*; AcOCPh₂CH₂CONHPh, m. 170–2°. II in these conditions gave *(p-MeC₆H₄)₂C(OAc)CH₂C(CN)₂OH*, m. 121–2°; the analogous *anilide*, m. 181–3°. Acid hydrolysis of these anilides gave the anilides of *β,β*-diphenyl-, and *β,β*-di-*p*-tolylacrylic acids. *2,2-Diphenyl-1,3-epoxypropane-1,1-dicarboxylic acid* (III) *di-Me ester* (IIIa), m. 125°, gave in boiling AcOH *Ph₂C:CHC(OH)(CO₂Me)₂* (IV), m. 87–9°, which on reduction with H on Pd gave *CHPh₂CH₂C(OH)(CO₂Me)₂*, m. 97.6–9°, yielding with 3% NaOH the respective acid, m. 165°, λ 2.84 and 5.91 μ, which on decarboxylation gave *CHPh₂CH₂CH(OH)CO₂H*, m. 131–3°, λ 2.90, 5.78 μ. III *di-K salt* obtained by treating I with boiling 20% KOH yielded with HCl *1-oxo-2-hydroxy-4,4-diphenyl-1,4-epoxybutane-3-carboxylic acid* (V), m. 163.5–5°, which on pyrolysis gave *1-oxo-2-hydroxy-4,4-diphenyl-1,4-epoxybutane* and *1-oxo-4,4-diphenyl-1,4-epoxybutene*. V was also produced from the respective amide, m. 207–9°, obtained at 60° from I in 5% KOH. V methylated with $SOCl_2$ and MeOH or HCl and MeOH afforded IV and *Me 1-oxo-4,4-diphenyl-2-hydroxy-1,4-epoxybutane-2-carboxylate* (VI), m. 125° (acetyl deriv., m. 103–5°). VI was also obtained from V by action of either CH_2N_2 or KOH followed by $AgNO_3$ and MeI. Infrared spectra within 2–15 μ for I, IIIa, V, and VI are given. VII. Reaction between carbonyl cyanide and ketene. *Ibid.* 417–18.—Ketene was found to react vigorously with $CO(CN)_2$ (I) to give 81.6% *1-oxo-3,3-dicyano-1,3-epoxypropane* (II), m. 182°, identical with the product of a reaction between I and Ac_2O (Malachowski, *C.A.* 47, 8653*i*). The structure of II was proved (*a*) by refluxing with EtOH for 12 hrs., whereby $CH(CO_2Et)_3$ was obtained, (*b*) by treating with $PhNH_2$ in acetone which gave $CH_2(CONHPh)_2$, (*c*) by treating with $PhNHNH_2$ nitrate which gave no phenylhydrazone (Thesing and Witzel, *C.A.* 50, 1590*i*), and (*d*) by the 4.41 μ and 5.34 μ absorption bands, corresponding to the cyano group and β-lactone ring, resp.

J. Stasiuk

G

Country : Poland

Category : Organic Chemistry. Synthetic Organic Chemistry.

Abs. Jour. : Ref Zhur-Khimiya, No. 12, 1959, No. 42376

Author : Achmatowicz, O.; Leplawy, M.

Institut. : Polish Academy of Sciences

Title : The Chemistry of Carbonyl Cyanide. VII. The Reaction between Carbonyl Cyanide and Ketene.

Orig. Pub. : Bull. Acad. polon. sci. Sér. sci. chim., géol. et géogr., 1958, 6, No. 7, 417-418, XXX-XXXVI

Abstract : A substance with the composition $C_6H_2O_2N_2$ was obtained through the interaction of $CO(CN)_2$ with $CH_2{=}CO$. Its yield was 81.6%, the m.p. 182°. The substance was identical to the one obtained earlier from $CO(CN)_2$ and $(CH_3CO)_2O$ (Malachowski, R., Roczn. Chem., 1950, 24, 229), to which the structure β,β-dicyanopropiolactone is attributed because of its reactions with alcohol or aniline (forming ethyl ether or diethyl anilino malonate), its infrared spectrum.

Card: 1/2

Distr: 4E2c(j)

An improved preparation of carbonyl cyanide. Osman Achmatowicz and Miroslaw Leplawy (Politechnika, Łódź, Poland). *Roczniki Chem.* 32, 1375-9(1958)(in English).—The Malachowski method of synthesis of carbonyl cyanide is improved by reducing the risk of explosion and increasing the yield (Malachowski, *et al.*, *C.A.*, 31, 4950⁸). Portions (30 g.) of acetoxyiminoacetic cyanide (I) are decompd. in a conical Claisen flask fitted to a condenser connected to two receivers, cooled to −15°. First, the pressure is reduced to 600 mm. then the flask is heated until I melts with further rapid increase to 165°. Heating is continued 45 min. to 180°. The crude product is purified by distn. through a Vigreux column and the fraction up to 62°/100 mm. is collected and redistd. to give 49% I, b. 64-6°. A. K.

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ACHMATOWICZ, Osman; LEPLAWY, Miroslaw

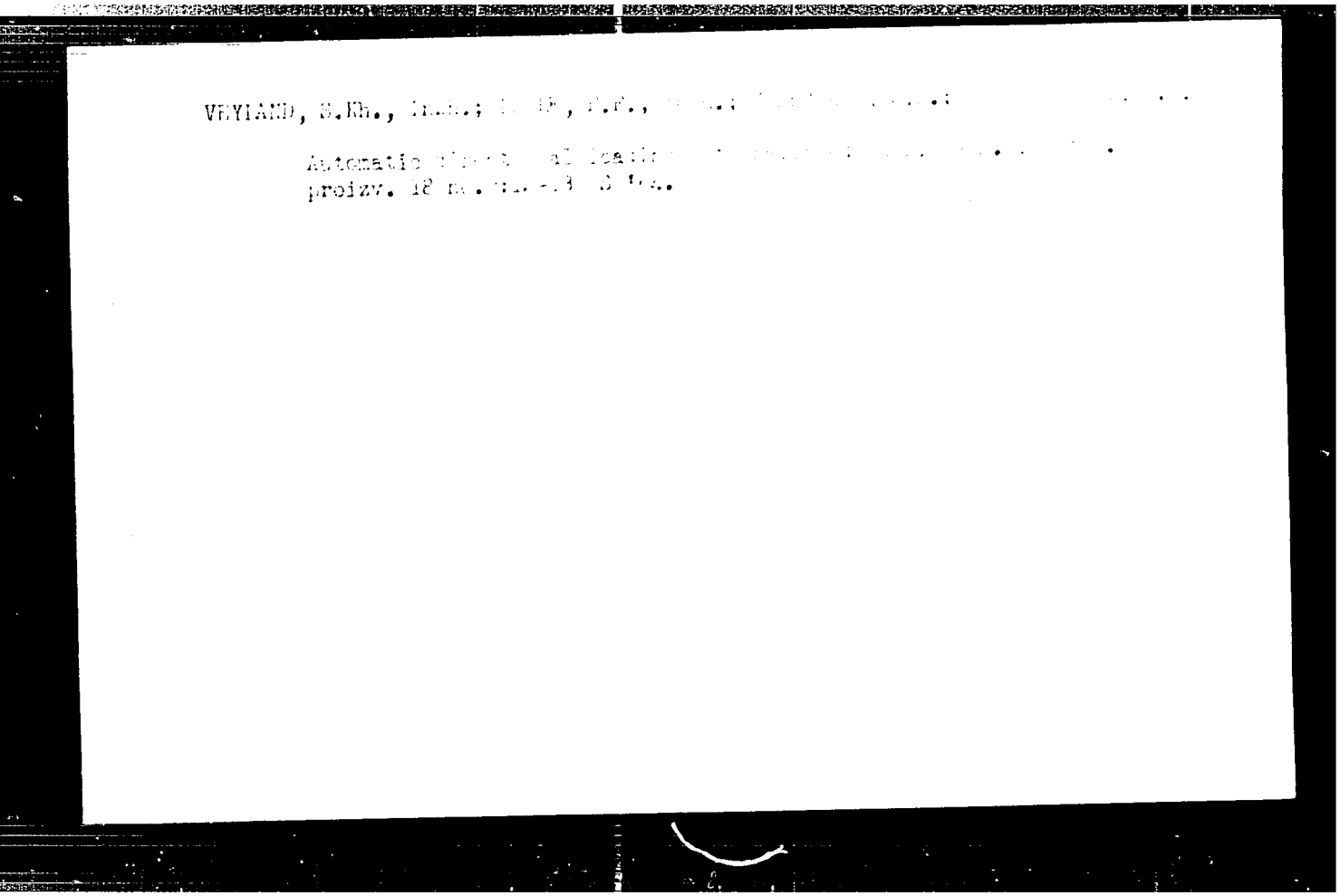
Chemistry of carbonyl cyanide. II. The action of carbonyl cyanide on 1,1-diphenylethylene. II. The action of carbonyl cyanide on 1,1-d-p-tolylethylene. Rocz chemii 33 no.6:1349-1376 '59. (EEAI 9:9)

1. Katedra Chemii Organicznej Uniwersytetu, Warszawa i Katedra Chemii Organicznej, Politechniki, Lodz.
(Carbonyl cyanide) (Diphenylethylene)
(Ditolylethylene)

LEPLAWY, M.; STEC, W.

Introducing of a t-butyloxycarbonyl protective group into amino acid esters by means of t-butyl cyanoformate. Bul chim PAN 12 no. 1:21-24 '64.

1. Department of Organic Chemistry, Technical University, Lodz. Presented by O.Achmatowicz.



VEYLAND, S.Kh., inzh.; [illegible], P.P., [illegible]

Automatic [illegible] al loadi[illegible]
proizv. 18 n. [illegible] 3 fig..

DEMENT'YEV, B.A.; LEPLIN, R.S.; LOGINOV, A.A.

Investigation of the hydrodynamics of water volume under conditions of great heights of the bubbling layer. Nauch.dokl. vys.shkoly; energ. no.2:263-274 '59. (MIRA 13:1)

1. Rekomendovana kafedroy atomnykh elektrostantsiy Moskovskogo energeticheskogo instituta.
(Hydrodynamics) (Bubbles)

1. LEPLINSKAYA, A. A.

2. USSR (600)

4. Uzbekistan-Apple

7. Early maturing varieties of apples in Uzebekistan. Sad i og. No. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

COUNTRY : USSR
CATEGORY : Cultivated Plants. Fruits. [illegible]

ABS. JOUR. : RZhBiol., No. 7, 1959, No. [illegible]

AUTHOR : [illegible]
INST. :
TITLE : Apples of the [illegible] Samarkand Market.

ORIG. PUB. : Sad i Ogorod, 1958, No. 5, [illegible]

ABSTRACT : no abstract.

CARD: 1/1

NATSVIN, A.V.; CHEREVATENKO, A.S.; VASIL'YEV, K.V.; PROTOSEVICH, L.A.; CHERNOVALOVA, V.P.; LEPLINSKAYA, A.A.; PAVLOV, A.K.; TASHMATOV, L.T.; CHIRKOV, F.K.; SOLDATOV, P.K.; KHAYDARKULOV, G.I.; TSEYTLIN, M.G., kand. sel'khoz.nauk; KUZNETSOV, V.V., kand. sel'khoz.nauk, otv. red.; KRIVONOSOVA, M.A., red.; SOROKINA, Z.I., tekhn. red.

[Best fruit and grape varieties for drying and preserving in the southwestern regions of Uzbekistan] Luchshie sorta plodovykh i vinograda dlia sushki i konservirovaniia v iugo-zapadnykh oblastiakh Uzbekistana. Tashkent, MSKh UzSSR, 1961. 162 p. (MIRA 15:7)

1. Institut sadovodstva i vinogradarstva im. R.R.Shredera. Samarkandskiy filial. 2. Samarkandskiy filial Instituta sadovodstva i vinogradarstva im. R.R.Shredera (for all except Kuznetsov, Krivonosova, Sorokina).
(Uzbekistan--Fruit--Varieties)
(Uzbekistan--Grapes--Varieties)

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